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PARTNERS



University of Arkansas Division of Agriculture

April 2000 Vol. 8, no. 1

FROM THE DIRECTOR

Dr. James Denton,
Director
Center of Excellence
for Poultry Science



The University of Arkansas Poultry Science Program was featured in several activities during the recent U.S. Poultry and Egg Association International Expo in Atlanta, Georgia. The Poultry Science Department was well represented by 27 undergraduate and graduate students who participated in the College Student Program sponsored by Elanco and the U.S. Poultry & Egg Association. Several were involved in the Job Interview sessions and also assisted in staffing the Center of Excellence for Poultry Science exhibit at the trade show. They also participated in the Poultry Science Club activities and educational program. Scharidi Hale was elected President of the U.S. Poultry Science Club and Heather McKemey was elected vice president. This is really outstanding recognition for our young people. Everyone in our program is really proud of these young people and their accomplishments.

As Center Director, I had the privilege of providing the University of Arkansas Poultry Science Department Student Recruitment report to the Board of Directors of the U.S. Poultry and Egg Association. Our enrollment continues to grow with 104 students enrolled last fall and 94 this spring. The recruitment activities of our program are supported by funds from the Harold E. Ford Foundation. The Board of Directors made two significant changes to the recruitment funding activities this year. Penn State University was added to the list of schools receiving support from the Foundation. In addition, the funding formula was modified to provide a base amount to each of the schools with the remaining pool of available funds being allocated on a merit basis dependent upon the number of students graduating with Poultry Science

- Director's Column continued on page 2 -

1st Annual Poultry Golf Tournament April 10 at Pinnacle Country Club

The Poultry Science Department at the University of Arkansas is hosting the First Poultry Science Scholarship Tournament, Monday, April 10 at Pinnacle Country Club in Rogers.

Proceeds from the tournament will benefit the poultry science scholarship fund. Last fall the department provided over \$93,000 in scholarship support for its students.

Format for the tournament is a four-person scramble with shotgun start. Two flights, 8:30 a.m. and 1:30 p.m., are available for registration. Prizes will be awarded to each winning team member during an awards presentation and banquet in the clubhouse after play in each flight is concluded.

The tournament will also feature a putting contest, longest drive contest and closest to the pin contest. Participants will have the opportunity to win a car with a hole-in-one on one of the par-three holes.

Sponsorship levels for the tournament range from \$400 to \$5,000. For more information, contact **Diana Bisbee**, event coordinator, at the Center of Excellence for Poultry Science (501)575-4952 or check the web site at <http://www.uark.edu/depts/posc/golf.html>.

If you have missed out on this year's tournament please make plans to attend next year's event.

Aerial shot of hole number five at Pinnacle Country Club in Rogers. The hole is completely surrounded by water.



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FROM THE DIRECTOR

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degrees. This system will encourage each participating institution to strive to meet the objectives of providing more qualified young people for employment in the poultry industry.

The featured item in the Poultry Center exhibit during the International Expo was the upcoming First Annual Poultry Science Scholarship Golf Tournament. The tournament is scheduled for Monday, April 10 at the Pinnacle Country Club in Rogers. A special thanks goes to Diana Bisbee, Gary Davis and Frank Jones for their help in publicizing the tournament and assisting in soliciting the sponsors. We are truly excited about this tournament and the potential for providing scholarship support for deserving students majoring in Poultry Science.

Also attending the International Expo for the first time as a faculty member at the University of Arkansas was Dr. Casey Owens who joined our team as the protein chemist in the poultry products program. She is an outstanding scientist and has great potential for contributing to the success of our program. Other new faculty members to join our team in the Poultry Center later this spring are Dr. Annie Donoghue, USDA Research Leader, Dr. Wayne Kuenzel, neuro-physiologist and Dr. Dan Donoghue, poultry physiologist. Our faculty team continues to expand with great expectations for the contributions they will make in the future.

We continue to work hard to ensure that the Poultry Center of the University of Arkansas is actively involved and recognized in support of our dynamic industry.

PARTNERS is a newsletter for faculty, staff, students, alumni and friends of the Center of Excellence for Poultry Science, University of Arkansas Division of Agriculture and Dale Bumpers College of Agricultural, Food and Life Sciences, UA-Fayetteville.

CEPS Director and Poultry Science Department Head: **Dr. James Denton**
Editor: **Karen Eskew**



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Embrex, Inc., presents UA with royalty check

The University of Arkansas received a royalty check Feb. 2 for \$38,243.19 from Embrex, Inc., for use of the viral neutralizing factor (VNF®) technology developed by UA researchers from the poultry science and biochemistry departments.

In 1988, this research was licensed to Embrex, headquartered in Research Triangle Park, North Carolina. Embrex has paid the U of A close to \$200,000 in royalties since 1993.

Dr. Craig E. Whitfill, Senior Director of Global Commercial Development for Embrex, presented the check to Dr. James H. Denton, Director of the Center of Excellence for Poultry Science.

"This joint research relationship has truly benefited Embrex, the U of A and the poultry industry. We are continuing to develop new VNF® products based on research originating from this university," said Whitfill.

Embrex has developed an infectious bursal disease (a.k.a. Gumboro disease) vaccine using the VNF® technology licensed from the U of A. Called Bursaplex®, the vaccine is the first USDA-approved VNF® vaccine complex that can be delivered *in ovo*. It is an effective, single-dose infectious bursal



Dr. Craig E. Whitfill, right, Senior Director of Global Commercial Development for Embrex, Inc., presents a \$38,243.19 check to Dr. James H. Denton, Director of the University of Arkansas' Center of Excellence for Poultry Science.

disease vaccine that safely protects broilers in the presence of maternal antibody. Embrex delivers this vaccine and others via its proprietary Inovoject® automated egg injection system, thereby eliminating the need for manual vaccination of newly hatched broiler chicks.

Embrex was recently granted a U.S. Patent to combine its proprietary VNF® technology with mammalian vaccines, which means VNF®-based technology may be used with other species.

Dr. John Stokes, Director of Research and Sponsored Programs at the U of A, said royalties received by the U of A are shared with the inventors of the technology and research and development programs.

Inovoject® and VNF® are registered trademarks of Embrex, Inc.

Poultry health research may lead to understanding human disease

An Arkansas Agricultural Experiment Station research project on a poultry health problem has attracted the interest of scientists studying similar problems in humans, says University of Arkansas poultry physiologist **Walter Bottje**.

The issue is hypoxia, or low blood oxygen, which can lead to development of congestive heart failure in humans, chickens and other animals.

In poultry, the condition is associated with the fast growth rate of broilers and is known as ascites or pulmonary hypertension syndrome (PHS). The condition is a limiting factor in production efficiency. Broiler deaths caused by PHS in Arkansas average 2 percent to 5 percent per year, Bottje says.

University of Arkansas doctoral student **David Cawthon** won a Young Investigator Presentation Award for his paper on PHS research at the Society for Free Radical Biology and Medicine in New Orleans Nov. 18-22. Bottje, as Cawthon's major professor and mentor on his doctoral research project, said he was approached by a pharmacologist at the meeting who sees potential in using chickens as models for research on hypoxia in humans.

Cawthon's paper, "Hepatic mitochondrial dysfunction and electron leak in avian pulmonary hypertension syndrome," is about the function of mitochondria in chickens with PHS. Mitochondria are the power units of animal cells - they use blood oxygen to generate energy.

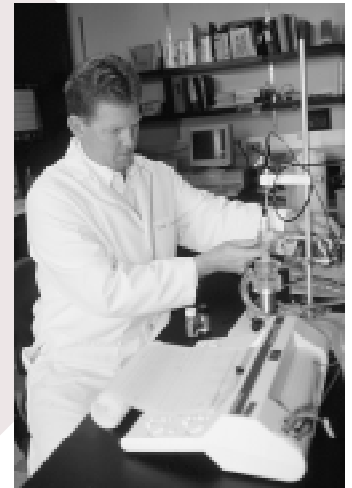
Cawthon, Bottje and post-doctoral associate **Muhammad Iqbal** use advanced cellular biology methods to open cells, isolate functioning mitochondria and observe their response to various treatments. The team identified a weakness in mitochondria of

chickens with PHS, which may be a key to breeding PHS-resistant chickens or identifying a dietary supplement to strengthen mitochondria.

Bottje said the poultry research project found that low blood oxygen may cause mitochondria to generate oxygen radicals. These free radicals, which can damage cells, are the topic of extensive research in human medicine.

"What happens in chicken cells may also happen in human cells under similar conditions," Bottje said. "By collaborating with scientists studying human physiology, we can help advance human medicine and increase our understanding of ways to improve broiler production efficiency."

CELLULAR BIOLOGY -- UA doctoral student David Cawthon uses an instrument to monitor mitochondria function in chicken cells in a poultry research project that has implications for human medicine. An award-winning paper presentation by Cawthon at the Society for Free Radical Biology and Medicine attracted the interest of scientists studying effects of low blood-oxygen levels in humans.



Retired Professor donates funds

Thomas W. Sullivan, retired professor from the University of Nebraska, donated funds to the University of Arkansas Department of Poultry Science to establish the Thomas W. Sullivan Graduate Student Competition Award.

The purpose of this competition is to promote excellence in the preparation and presentation of scientific papers at professional society meetings. The first awards will be presented prior to the Poultry Science Association annual meeting during the Poultry Science Graduate Symposium in 2000. The top three students preparing and presenting papers at the symposium will be chosen by a faculty selection panel and will receive \$500 for first place, \$300 for second place and \$200 for third place. Sullivan's gift will endow this award indefinitely.

Sullivan received his B.S. degree from Oklahoma A&M College, Stillwater; his M.S. degree from the U of A; and, his

Ph.D. from the University of Wisconsin, Madison. He is a former member of the Arkansas National Guard and a veteran of the U.S. Army.



Charles Scifres (left), dean of the Bumpers College of Agricultural, Food & Life Sciences, presents a token of appreciation for his donation to the poultry science department to Thomas Sullivan (right) as James Denton, director of the Center of Excellence for Poultry Science looks on.

Sullivan served as adjunct professor of agriculture and animal science at Arkansas Tech University from 1993 to 1997. Prior to his appointment at Arkansas Tech, he was a professor of poultry science at the University of Nebraska, Lincoln, for 28 years.

Sullivan received numerous awards and recognition including the Nebraska Poultry Industry Hall of Fame, Poultry Science Association Fellow, American Feed Industry Association Nutrition Research Award and was inducted into the Arkansas Tech University Hall of Distinction.

Sullivan and his wife, Maggie, live in Russellville.

New faculty joins Poultry Science



Casey M. Owens
Assistant Professor,
Poultry Products

Casey Owens recently joined the faculty of the Poultry Science Department as assistant professor of poultry products. Owens was previously employed at Texas A & M University (TAMU) as a graduate research/teaching assistant while completing her doctorate.

Owens primary area of research was conducting studies to evaluate the effect of preslaughter environmental conditions and processing techniques on muscle metabolism and meat quality of poultry. Research focused in the development of pale, soft exudative meat in poultry.

Owens has been active in the Poultry Science Association, Institute of Food Technologists, Southern Poultry Science Society, Phi Tau Sigma (honor society for Food Science), Alpha Zeta (honor society for agriculture) and Gamma Sigma Delta.

She received the Distinguished Graduate Student Master's Research Award at TAMU in addition to the J.H. Quisenberry Award for an Outstanding Poultry Science Student.

Owens resides in Farmington.



Members of the Poultry Science Club gather for a photo at Dawn Hills Country Club during the first Kirk Skeeles Memorial Golf Tournament.

Poultry lab renamed in memory of professor



The family of John Kirkpatrick Skeeles pull down the blue tarp unveiling the new sign on the Poultry Health Laboratory renamed for Skeeles, who died during a lecture trip to China in March.

A University of Arkansas poultry laboratory has been named in memory of poultry science professor **John Kirkpatrick Skeeles**, who died March 21 during a lecture trip in China.

The John Kirkpatrick Skeeles Poultry Health Lab was dedicated Dec. 21 during a ceremony held at the laboratory located on the Arkansas Agricultural Research and Extension Center in Fayetteville.

Skeeles came to the University of Arkansas in 1978 and was appointed full professor in 1988. He was a poultry veterinarian working in the area of poultry health and diseases in the Arkansas Agricultural Experiment Station. He taught poultry health and veterinary science in the Bumpers College of Agricultural, Food and Life Sciences.

"Dr. Skeeles played a leading role in the design, construction and management of the lab," said James Denton, head of the poultry science department and director of the Center of Excellence for Poultry Science.

"It's fitting that this important laboratory be dedicated to his memory. He contributed tremendously to poultry health research and he is greatly respected for his teaching at Bumpers College," Denton said.

The Skeeles Poultry Health Lab was completed in 1993 at a cost of \$2.1 million. It has the highest bio-safety rating of any poultry research facility. Research conducted in its isolation labs leads to understanding how infectious avian diseases affect poultry populations and to development of vaccines essential to the poultry industry.

POSC Club hosts Skeeles Memorial Tournament

The Poultry Science Club at the University of Arkansas hosted the first Kirk Skeeles Memorial Golf Tournament at Dawn Hills in Siloam Springs recently.

Twenty industry representatives teamed up with 20 students for a day of scramble golf. The event raised \$750.00 for the Skeeles' scholarship fund.

CIV/distance ed studio dedicated

Classes know no geographic bounds at the Bumpers College of Agricultural, Food and Life Sciences thanks to technology that links professors at the University of Arkansas to their students across the state.

A compressed interactive video classroom that went online this semester in the Poultry Science Center connects teachers and students on the Fayetteville campus to distance education students in Batesville, Jonesboro, Little Rock, Helena and Hope. The college held its first distance education classes last fall from CIV classrooms in other university locations.

"In this first year, 133 students have participated in Bumpers College distance education courses," said Diana Bisbee, distance education and special projects coordinator. "Courses were offered in agricultural statistics, family studies, child development, agricultural education and animal and poultry science."

Compressed interactive video sends live, two-way images and sound over high-speed T-1 internet data lines to any CIV-equipped classroom or meeting room, said Randy Gottfried, operations manager. Because the connection also allows data transfer, computer presentations can also be shared between sites.

"Distance education gives us a means of offering agricultural, food and life sciences education to a larger and more diverse group of students," said Randy Luttrell, associate dean for academics. "Students from virtually any area of the state can begin a

degree program through Bumpers College by taking classes in or near their hometowns. "CIV courses also add depth and flexibility to the Arkansas Consortium for Teaching Agriculture," Luttrell said.

ACTA is a network of two-year and four-year colleges whose agriculture curricula are coordinated with Bumpers College. The program streamlines transfers for students who begin their education in a community col-

lege and want to complete their bachelor's degrees at the U of A. "Students can take required Bumpers College courses while enrolled in any of our eight community college partners," Luttrell said.

Bisbee said a classroom in the Agriculture Building will be converted to a second compressed interactive video classroom to permit expansion of the college's distance education offerings.



Charles Scifres, dean of the Bumpers College of Agricultural, Food and Life Sciences, cuts a ribbon to dedicate a compressed interactive video classroom. Assisting the dean with the dedication and tour of the facility are Diana Bisbee, distance education coordinator, and Randy Gottfried, operations manager. The new classroom permits Bumpers College courses to be shared interactively with students in other locations around Arkansas.

Dr. Jason Emmert became interested in poultry science during his sophomore year at the University of Illinois.

"I was an animal sciences major and was interested in gaining research experience, so I began working in Dr. David Baker's poultry nutrition lab. I was given progressively more responsibility and was able to contribute to several research projects, which led to my interest in pursuing graduate degrees," said Emmert.

Emmert's primary departmental activities include teaching Introduction to Poultry Careers, Broiler and Turkey Pro-

duction, Breeder and Layer Management, and Poultry Judging and Selection. Emmert also coaches the collegiate poultry judging team

*faculty
profile*
**Jason
Emmert**



and conducts workshops and contests for FFA and 4-H groups through Arkansas.

Emmert also assists many of the departmental recruiting projects and is a co-advisor for the Poultry Science Club.

"My advice for students interested in becoming scientists is to never settle for less than your maximum effort, whether it's class or work. You should not be afraid to take challenging classes, and you should try to gain exposure to different areas of science (genetics, immunology, nutrition, physiology, etc) to help you decide upon a career path. Finally, ask for advice from as many people as possible," said Emmert.

Highlights of the Atlanta Expo...



From left, Fred Kao, Chad Clem, Cheryl Esters, Brian Esters and Micah Bone, all students in poultry science, enjoy breakfast at the recent Poultry Expo in Atlanta.



From left, Nichole Blackburn, Cheryl Esters, Diana Bisbee, Gary Davis and Jason Emmert work the Center of Excellence for Poultry Science booth on the exhibit floor of the International Poultry Expo in Atlanta.

Two giant exhibit halls are covered with more than 1,050 exhibits featuring the latest technologies, equipment and new ideas for production and processing of poultry and eggs.

Delicious!



Kids visiting the Center of Excellence for Poultry Science had a fun time making their own crepes at a special university day field trip.

Gamma Sigma Delta hosts student research competition

University of Arkansas students won \$900 in a research presentation competition sponsored by the agriculture honor society Gamma Sigma Delta and Bumpers College of Agricultural, Food and Life Sciences.

Thirty-seven undergraduate and graduate students competed in four categories Feb. 9 at the Arkansas Union. Cash prizes of \$100, \$75 and \$50 were awarded in each category from first to third places.

First through third place winners and presentation titles in each category were: Undergraduate papers: **Joyce Jong**, senior poultry science major, Chino, Calif., Livability of Leghorn Balut Embryos Stored Under Varying Temperature and Storage Times; Chrislyn Drake, Rogers, Determination of Chilling Requirement of Arkansas Blackberry Cultivars; and Jerry Fendley, Arkadelphia, Fissure Characterization of Rice Kernels Using Video Microscopy.

Master's papers: L. Thomas Barber, Fayetteville, Alternative Herbicide Programs for Diclofop-resistant Ryegrass in Wheat; Jeff Weyers, Burt, NY., Effects of Supplementation and Nitrogen Fertilization on Stocker Cattle Performance; and Mike Lovelace, Yukon, Okla., Tomato Response and Residue

Other poultry science undergraduate and graduate students competing included **Niki Loupe**, sophomore, with her presentation "Growth Performance of Broiler Chicks During the Starter and Grower Phases when Utilizing Phase-Feeding;" **Brenda Kidd**, graduate student with her presentation "Physiological Comparison Between Ascites Resistant, Ascites Susceptible and the Relaxed Line of Broilers;" and **Hang Xie** with her paper "Inflammation-induced Changes in Chicken Serum."

Congratulations to all of these students on their hard work in the competition.

Joyce Jong presents her winning paper at the recent Gamma Sigma Delta student research competition. Jong, a senior poultry science major, won first place in her division.



Food science video wins silver CINDY award

"Eggceptional Ideas for Food Science Creations," an educational video won a Silver CINDY, one of the most prestigious awards given to productions made for television.

This award-winning video is 15 minutes and combines on-site interviews, demonstrations and graphic animation to explain the importance of eggs in our daily lives.

The video was produced by Ray Neilsen and Sandra Ake, Arkansas Educational Television Network, and written under the direction of **Dr. John Marcy**, Center of Excellence for Poultry Science, and Janan Jackson, the Egg Council. Funding was provided by the Egg Council, The American Egg Board and the Center of Excellence for Poultry Science.

NAFS begins transitions to new phases

After a year of tending to organizational details, the National Alliance for Food Safety is beginning to take shape. Specific goals are being set and tasks are being defined.

"We want to work on what the NAFS can do better than individual scientists or individual universities can do," said Lonnie King, co-chair of the NAFS board of directors.

King, the dean of the Michigan State University College of Veterinary Medicine, summarized NAFS activities in a report during a board meeting held in October in Washington during a Georgetown University food safety conference.

King said the NAFS seeks to have an impact on public policies regarding food safety and to meet the needs of consumers. Planned activities for NAFS members include pursuit of basic and applied research, service as advocates for food safety, coordination and prioritization of research, assisting in the establishment of a national food safety agenda and teaching food safety at the scientific, industrial and consumer levels.

"We want to leverage the capacity we have," he said. "We don't want to duplicate efforts."

Long-term funding prospects for NAFS are still developing, but funding is anticipated to be from multiple sources, King said.

NAFS is in a transitional stage. King explained that the organization currently relies on volunteer staff from member universities to serve its administrative needs. He has proposed consideration of shifting these duties to a permanent part-time or full-time staff in about a year.

As the NAFS charts its future, the board has imposed a moratorium on admitting new members. King said that when issues regarding NAFS funding and other procedures are resolved, the alliance will reopen the doors to new membership applications.

Meanwhile, the NAFS is also looking at ways to organize the research, educational and technology transfer activities it expects to sponsor. The board is continuing to work on a proposal that would establish NAFS as a "virtual institute." The current proposal would establish centers for areas of emphasis.

The center concept is based on a proposal reviewed by participating universities at the October meeting, King noted. The concept was presented as a method to better align participating universities.

The parameters of such centers, which King called "convergence points of research activity," would be determined by factors such as geographic locations and levels of collaboration with the Agricultural Research Service. The centers' roles would be reviewed every three years. Each center would concentrate on a particular area of food safety through collaboration of member institutions' researchers with similar interests. Some board members are developing alternative suggestions to the center concept.

Faculty presents puppet show illustrating handwashing to kids

Dr. Amy Waldroup, professor of poultry science at the U of A, makes learning fun by incorporating puppets in her handwashing demonstrations.

Waldroup's major research focus concentrates on food microbiology, safety of poultry products and quality control. Waldroup also works with high-risk groups regarding food safety issues as shown here at a recent demonstration.



Amy Waldroup uses puppets to stress the importance of handwashing to children.

Calendar of Events

April 1 - Poultry Science Club Awards Banquet at the Clarion Inn in Fayetteville

April 10 - Poultry Science Scholarship Golf Tournament, Pinnacle Country Club in Rogers

April 11/12 - Poultry Federation Symposium, NWA Holiday Inn Convention Center, Springdale

April 13 - Honors Convocation, Union Theater 1:30 pm

April 27 - HACCP Roundtable

May 13 - University-wide commencement reception 11:30 - 1:30 pm

May 13 - Commencement (AGRI) Randal Tyson Indoor Track Complex 1:30 pm

May 22 - ACTA Recruiting/Advising Seminar, Little Rock

May 25 - HACCP Roundtable

May 29 - Memorial Day

June 10 - 41st Annual Poultry Festival, Hot Springs, Arkansas. (501)375-8131

E-mail your events to Karen Eskew
keskew@comp.uark.edu

Walter Bottje and **Robert Wideman** presented a seminar entitled "Why did the chicken develop pulmonary hypertension syndrome?" to the Pulmonary and Critical Care specialty group at the Vanderbilt University Medical Center in Nashville, Tenn.

Susan Watkins presented "The Bio-burner: A new tool in poultry house sanitation" at the U.S. Poultry & Egg 1999 Production & Health Seminar this past September in Memphis as well as at the Franklin County Poultry Meeting in Ozark in October.

Watkins also hosted a group from Romania in September who were on a fact-finding mission in the United States. The group was sponsored by the American Soybean Association.

Watkins also attended the 2000 Poultry Waste Management Symposium National Meeting in Atlanta and was appointed Chair of Sponsorship Committees. **Watkins** was also elected to the Board of Directors for the National Egg Quality School.

And finally, **Watkins** served as co-chair at the human relations training sponsored by the Poultry Federation in September and October. Approximately 360 poultry industry representatives attended the training in four locations with the Center of Excellence hosting the September 28 training. Various industry representatives participated in the training.

John Kirby and **Susan Watkins** co-hosted the Male Breeder Clinic in October at the Center of Excellence for Poultry Science. Approximately 65 industry personnel attended the workshop.

James Denton attended the U.S. Poultry & Egg Board of Directors meeting in Atlanta in January and presented a recruitment report. **Denton** also attended the National Animal Science Department Heads Meeting in Atlantic City, New Jersey in January; and the International HACCP Alliance Board of Directors Meeting February 3 and 4 in Chicago. Several faculty members, including **Denton**, also attended the 52nd Annual International Poultry Exposition in Atlanta January 17 - 21.

John Marcy and The Poultry Federation hosted a Meat-Pinking Conference at the Center of Excellence for Poultry Science in October. There were 98 participants from several national poultry companies who work in the area of research and development and quality management. Newlywed Foods, headquartered in Chicago, contributed most of the support toward the expense of the conference.

Marcy hosted a two-day Processors Workshop October 21 & 22 at the Center. There were 90 attendees. The Poultry Science Club prepared breakfast omelets and burritos for the event.

Marcy and Jon Porter also hosted two

Tyson Sanitation Workshops at the center November 10 & 11 and February 2 & 3. The two-day short course workshops had approximately 23 participants from Tyson Foods. Don Tyson, chairman of the board for Tyson's, spoke briefly at the workshops. In addition to the Tyson workshop, **Marcy and Porter** hosted sanitation workshops in conjunction with Ecolab November 15 & 16 and December 6, 7 & 8. This HACCP class was attended by small processors as part of a grant provided by the USDA in conjunction with Texas A & M.

Casey Owens is an invited speaker in Minneapolis, Minn., March 15. She will present "Factors Influencing PSE Meat in Turkeys."

Student Notes

The **Poultry Science Club** hosted the first **Kirk Skeeles** Memorial Golf Tournament at Dawn Hills Golf Course in Siloam Springs. Twenty industry representatives teamed up with 20 students for a day of scramble golf. The event raised \$750.00 for Dr. Skeeles' scholarship fund.

Joyce Jong, senior, won first place in the undergraduate category of the recent Gamma Sigma Delta research paper competition for her presentation "Livability of Leghorn Balut Embryos Stored Under Varying Temperature and Storage Times." Other students presenting at the competition were **Niki Loupe**, sophomore, with her paper "Growth Performance of Broiler Chicks during the Starter and Grower Phases when Utilizing Phase-Feeding;" **Brenda Kidd**, graduate student, with her paper "Physiological Comparison Between Ascites Resistant, Ascites Susceptible, and the Relaxed Line of Broilers.;" and **Hang Xie**, graduate student, with "Inflammation-induced Changes in Chicken Serum."

Scharidi Hale, senior, won Student of the Year at the 2000 International Poultry Expo in Atlanta in January. She was also named President of the U.S. Poultry Science Club. **Heather McKemey**, junior, was elected Vice President of the Student U.S. Poultry Science Club. McKemey is currently working an internship position with Tyson Foods marketing department.

Micah Bone, senior, won Miss Red River Valley and will be competing in the Miss Arkansas pageant in Hot Springs in June.

Grants Awarded

The following grants have been awarded:

N.B. Anthony, F.D. Clark and J.L. Emmert, Undergraduate Research Project, \$500 each

W.G. Bottje, U.S. Poultry & Egg Association, \$43,093

J.H. Denton, Specific Cooperative Agreement, \$18,844

J.L. Emmert and D.M. Barnes, Higher Education Challenge Grant, \$78,281

G.F. Erf, Roche Vitamins, Inc., \$5,000

G.F. Erf, ADHE, \$2600

Y. Li, USDA-Brine Chiller, \$194,668

Y. Li, Food Safety, \$114,600

J.A. Marcy, Special Non-Competitive, \$35,600

J.A. Marcy and A.L. Waldroup, USDA, Enhancement of the Safety of Poultry Products, \$6,700

R. Okimoto, Peterson Farms, Inc., \$3,000

M.S. Parcels, U.S. Poultry & Egg, \$25,000

M.F. Slavik, Food Safety, \$59,000

A.L. Waldroup, ASTA, \$75,005

A.L. Waldroup, Food Safety, \$49,700

P.W. Waldroup, Nutri-Quest, Inc., \$18,000

S.E. Watkins, Mr. Joe Flusche, \$500

R.F. Wideman, Rhone-Poulenc Animal Nutrition, Inc., \$10,000

R.F. Wideman, Hubbard ISA, \$17,500